

Amendment to the Claims

Kindly amend claims 1, 27 and 51, and add claims 75-76, as set forth below. In compliance with the Revised Amendment Format published in the Official Gazette on February 25, 2003, a complete listing of claims is provided herein. The changes in the amended claims are shown by strikethrough (for deleted matter) and underlining (for added matter).

1. (Currently Amended) A system of managing clusters of a computing environment, said system comprising:

a registry component to provide global data storage for global data of a cluster of said computing environment, said cluster including ~~one or more~~ a plurality of nodes of said computing environment and said global data comprising configuration data of multiple nodes of the plurality of nodes;

a configuration component to maintain data locally on at least one node of said ~~one or more~~ plurality of nodes, and to store global data in said registry component;

a liveness component to provide status of one or more communications paths of said cluster, said liveness component being dependent upon said registry component and said configuration component;

a group services component to provide one or more services to one or more other components of said cluster, said group services component being dependent on said registry component, said configuration component and said liveness component; and

a resource management component to provide communications to one or more resource controllers of said cluster, said resource management component being dependent on said registry component, said configuration component and said group services component.

2. (Original) The system of claim 1, wherein said registry component is dependent on said group services component for at least one type of operation.

3. (Previously Presented) The system of claim 2, wherein said at least one type of operation comprises a write operation.

4. (Canceled)
5. (Canceled)
6. (Previously Presented) The system of claim 2, wherein said registry component is functionally dependent on said group services component.
7. (Previously Presented) The system of claim 1, wherein said being dependent comprises being functionally dependent.
8. (Previously Presented) The system of claim 7, wherein said registry component lacks a data dependency on said configuration component, said liveness component, said group services component and said resource management component.
9. (Previously Presented) The system of claim 7, wherein said configuration component has a data dependency on said registry component.
10. (Previously Presented) The system of claim 7, wherein said liveness component has a data dependency on said registry component.
11. (Previously Presented) The system of claim 7, wherein said group services component has a data dependency on said registry component.
12. (Previously Presented) The system of claim 7, wherein said resource management component has a data dependency on said registry component.
13. (Previously Presented) The system of claim 7, wherein said liveness component has a data dependency on said configuration component.
14. (Previously Presented) The system of claim 7, wherein said group services component has a data dependency on said configuration component.
15. (Previously Presented) The system of claim 7, wherein said resource management component has a data dependency on said configuration component.
16. (Previously Presented) The system of claim 1, wherein said cluster includes a plurality of nodes, and wherein said registry component is included on less than all nodes of said plurality of nodes.

17. (Previously Presented) The system of claim 1, wherein said configuration component is started by at least one operating system of at least one node of said one or more nodes of said computing environment.

18. (Previously Presented) The system of claim 1, wherein said configuration component is responsible for starting one or more components of said registry component, said liveness component, said group services component and said resource management component.

19. (Previously Presented) The system of claim 18, wherein the starting of one or more components satisfies at least one of one or more functional dependencies between the one or more components and one or more data dependencies between the one or more components.

20. (Previously Presented) The system of claim 18, wherein said one or more components are started by the configuration component in a defined order.

21. (Previously Presented) The system of claim 20, wherein said defined order comprises starting the registry component, and then the liveness component, the group services component and the resource management component.

22. (Previously Presented) The system of claim 21, wherein said registry component begins a first phase of its initialization, in response to being started, said first phase of initialization comprising determining at least one copy of a global configuration database to be used in the starting.

23. (Previously Presented) The system of claim 22, wherein said configuration component utilizes a copy of said at least one copy of the global configuration database to verify data, and then continue with starting the liveness component, the group services component and the resource management component.

24. (Previously Presented) The system of claim 23, wherein said group services component completes its initialization, in response to the liveness component becoming available.

25. (Previously Presented) The system of claim 24, wherein said registry component begins a second phase of its initialization, in response to the group services component completing initialization, said second phase of initialization comprising updating zero or more copies of the global configuration database to allow write operations against the global configuration database.

26. (Previously Presented) The system of claim 25, wherein said resource management component performs its initialization using said system registry component and said group services component.

27. (Currently Amended) A method of managing clusters of a computing environment, said method comprising:

providing, via a registry component, global data storage for global data of a cluster of said computing environment, said cluster including ~~one or more~~ a plurality of nodes of said computing environment and said global data comprising configuration data of multiple nodes of the plurality of nodes;

maintaining, via a configuration component, data locally on at least one node of said ~~one or more~~ plurality of nodes, and to store global data in said registry component;

providing, via a liveness component, status of one or more communications paths of said cluster, said liveness component being dependent upon said registry component and said configuration component;

providing, via a group services component, one or more services to one or more other components of said cluster, said group services component being dependent on said registry component, said configuration component and said liveness component; and

providing, via a resource management component, communications to one or more resource controllers of said cluster, said resource management component being dependent on said registry component, said configuration component and said group services component.

28. (Previously Presented) The method of claim 27, wherein said registry component is dependent on said group services component for at least one type of operation.

29. (Previously Presented) The method of claim 28, wherein said at least one type of operation comprises a write operation.

30. (Previously Presented) The method of claim 28, wherein said registry component is functionally dependent on said group services component.

31. (Previously Presented) The method of claim 27, wherein said being dependent comprises being functionally dependent.

32. (Previously Presented) The method of claim 31, wherein said registry component lacks a data dependency on said configuration component, said liveness component, said group services component and said resource management component.

33. (Previously Presented) The method of claim 31, wherein said configuration component has a data dependency on said registry component.

34. (Previously Presented) The method of claim 31, wherein said liveness component has a data dependency on said registry component.

35. (Previously Presented) The method of claim 31, wherein said group services component has a data dependency on said registry component.

36. (Previously Presented) The method of claim 31, wherein said resource management component has a data dependency on said registry component.

37. (Previously Presented) The method of claim 31, wherein said liveness component has a data dependency on said configuration component.

38. (Previously Presented) The method of claim 31, wherein said group services component has a data dependency on said configuration component.

39. (Previously Presented) The method of claim 31, wherein said resource management component has a data dependency on said configuration component.

40. (Previously Presented) The method of claim 27, wherein said cluster includes a plurality of nodes, and wherein said registry component is included on less than all nodes of said plurality of nodes.

41. (Previously Presented) The method of claim 27, wherein said configuration component is started by at least one operating system of at least one node of said one or more nodes of said computing environment.

42. (Previously Presented) The method of claim 27, further comprising starting, via said configuration component, one or more components of said registry component, said liveness component, said group services component and said resource management component.

43. (Previously Presented) The method of claim 42, wherein the starting of one or more components satisfies at least one of one or more functional dependencies between the one or more components and one or more data dependencies between the one or more components.

44. (Previously Presented) The method of claim 42, wherein said one or more components are started by the configuration component in a defined order.

45. (Previously Presented) The method of claim 44, wherein said defined order comprises starting the registry component, and then the liveness component, the group services component and the resource management component.

46. (Previously Presented) The method of claim 45, further comprising beginning, by said registry component, a first phase of its initialization, in response to being started, said first phase of initialization comprising determining at least one copy of a global configuration database to be used in the starting.

47. (Previously Presented) The method of claim 46, further comprising utilizing, by said configuration component, a copy of said at least one copy of the global configuration database to verify data, and then continue with starting the liveness component, the group services component and the resource management component.

48. (Previously Presented) The method of claim 47, further comprising completing, by said group services component, its initialization, in response to the liveness component becoming available.

49. (Previously Presented) The method of claim 48, further comprising beginning, by said registry component, a second phase of its initialization, in response to the group services component completing initialization, said second phase of initialization comprising updating zero or more copies of the global configuration database to allow write operations against the global configuration database.

50. (Previously Presented) The method of claim 49, further comprising performing, by said resource management component, its initialization using said system registry component and said group services component.

51. (Currently Amended) At least one program storage device readable by a machine tangibly embodying at least one program of instructions executable by the machine to perform a method of managing clusters of a computing environment, said method comprising:

providing, via a registry component, global data storage for global data of a cluster of said computing environment, said cluster including ~~one or more~~ a plurality of nodes of said computing environment and said global data comprising configuration data of multiple nodes of the plurality of nodes;

maintaining, via a configuration component, data locally on at least one node of said ~~one or more~~ plurality of nodes, and to store global data in said registry component;

providing, via a liveness component, status of one or more communications paths of said cluster, said liveness component being dependent upon said registry component and said configuration component;

providing, via a group services component, one or more services to one or more other components of said cluster, said group services component being dependent on said registry component, said configuration component and said liveness component; and

providing, via a resource management component, communications to one or more resource controllers of said cluster, said resource management component being dependent on said registry component, said configuration component and said group services component.

52. (Previously Presented) The at least one program storage device of claim 51, wherein said registry component is dependent on said group services component for at least one type of operation.

53. (Previously Presented) The at least one program storage device of claim 52, wherein said at least one type of operation comprises a write operation.

54. (Previously Presented) The at least one program storage device of claim 52, wherein said registry component is functionally dependent on said group services component.

55. (Previously Presented) The at least one program storage device of claim 51, wherein said being dependent comprises being functionally dependent.

56. (Previously Presented) The at least one program storage device of claim 55, wherein said registry component lacks a data dependency on said configuration component, said liveness component, said group services component and said resource management component.

57. (Previously Presented) The at least one program storage device of claim 55, wherein said configuration component has a data dependency on said registry component.

58. (Previously Presented) The at least one program storage device of claim 55, wherein said liveness component has a data dependency on said registry component.

59. (Previously Presented) The at least one program storage device of claim 55, wherein said group services component has a data dependency on said registry component.

60. (Previously Presented) The at least one program storage device of claim 55, wherein said resource management component has a data dependency on said registry component.

61. (Previously Presented) The at least one program storage device of claim 55, wherein said liveness component has a data dependency on said configuration component.

62. (Previously Presented) The at least one program storage device of claim 55, wherein said group services component has a data dependency on said configuration component.

63. (Previously Presented) The at least one program storage device of claim 55, wherein said resource management component has a data dependency on said configuration component.

64. (Previously Presented) The at least one program storage device of claim 51, wherein said cluster includes a plurality of nodes, and wherein said registry component is included on less than all nodes of said plurality of nodes.

65. (Previously Presented) The at least one program storage device of claim 51, wherein said configuration component is started by at least one operating system of at least one node of said one or more nodes of said computing environment.

66. (Previously Presented) The at least one program storage device of claim 51, wherein said method further comprises starting, via said configuration component, one or more components of said registry component, said liveness component, said group services component and said resource management component.

67. (Previously Presented) The at least one program storage device of claim 66, wherein the starting of one or more components satisfies at least one of one or more functional dependencies between the one or more components and one or more data dependencies between the one or more components.

68. (Previously Presented) The at least one program storage device of claim 66, wherein said one or more components are started by the configuration component in a defined order.

69. (Previously Presented) The at least one program storage device of claim 68, wherein said defined order comprises starting the registry component, and then the liveness component, the group services component and the resource management component.

70. (Previously Presented) The at least one program storage device of claim 69, wherein said method further comprises beginning, by said registry component, a first phase of its initialization, in response to being started, said first phase of initialization comprising determining at least one copy of a global configuration database to be used in the starting.

71. (Previously Presented) The at least one program storage device of claim 70, wherein said method further comprises utilizing, by said configuration component, a copy of said at least one copy of the global configuration database to verify data, and then continue with starting the liveness component, the group services component and the resource management component.

72. (Previously Presented) The at least one program storage device of claim 71, wherein said method further comprises completing, by said group services component, its initialization, in response to the liveness component becoming available.

73. (Previously Presented) The at least one program storage device of claim 72, wherein said method further comprises beginning, by said registry component, a second phase of its initialization, in response to the group services component completing initialization, said second phase of initialization comprising updating zero or more copies of the global configuration database to allow write operations against the global configuration database.

74. (Previously Presented) The at least one program storage device of claim 73, wherein said method further comprises performing, by said resource management component, its initialization using said system registry component and said group services component.

75. (New) The system of claim 1, wherein the configuration data comprises multiple node definitions for the multiple nodes.

76. (New) The system of claim 1, wherein said computing environment is a shared nothing environment.